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ABSTRACT

Outlined is a proposed statewide environmental education program for Maine. The program intends to prepare citizens to identify environmental problems, to evaluate solutions to the problems, and to work toward their solution. The program will be implemented at several levels of education: formal preschool, elementary, and secondary education; formal higher education; formal adult education; and non-formal general public education. Listed are recommendations for creation and maintenance of the program at each level, and identified are resources to assist in the implementation at each level. (MR)

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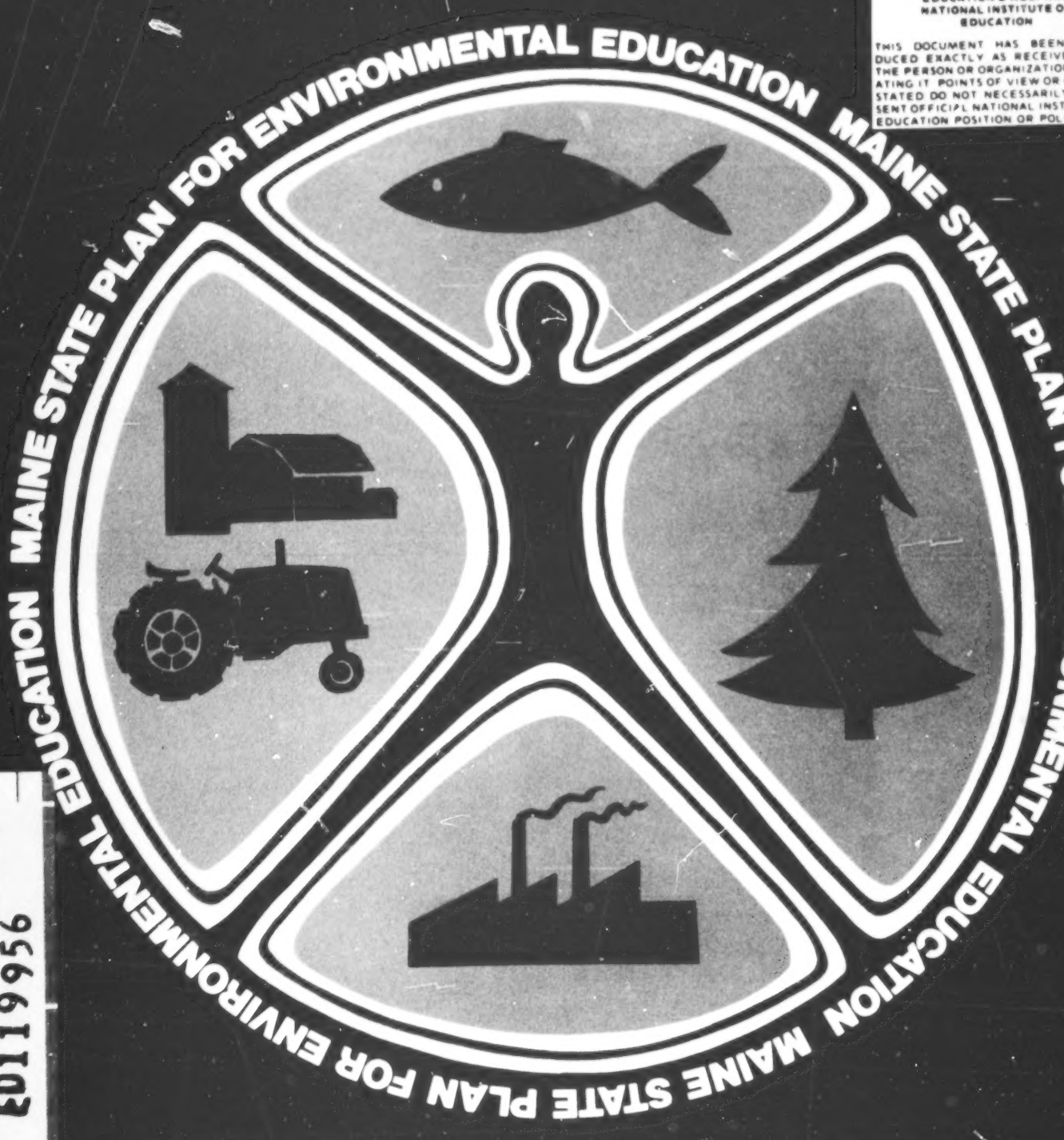
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MAINE STATE DEPARTMENT OF EDUCATIONAL AND CULTURAL SERVICES

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MAINE STATE PLAN FOR ENVIRONMENTAL EDUCATION

MAINE STATE DEPARTMENT OF EDUCATIONAL AND CULTURAL SERVICES
DR. CARROLL R. McGARY, COMMISSIONER
July 1, 1974

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The need for conservation of our natural resources has been recognized by thoughtful citizens for decades. Now joining the conservationists are people who are thinking in terms of quality of environment.

Various educational efforts by interested organizations and individuals have made many citizens aware of the need for concerted, organized plans to preserve and conserve what we still have and, insofar as possible, to improve the environmental legacy for our children.

The Maine State Plan for Environmental Education was developed by a broad-based representation of Maine society representing all segments of our way of life. This plan is a reasonable one. It is attainable. I recommend without reservation its adoption and the application of its recommendations by the citizens of Maine.

Education is needed to support statewide environmental policy. This plan will begin to do that.

Kenneth M. Curtis, Governor
State of Maine

During this period when our nation and the whole world must contend with an energy crisis, I believe that this document dealing with Maine's plan for environmental education is particularly timely. The energy crisis, however, is only one of the many problems that we must resolve if we wish to continue our present course in the use of the earth's non-renewable resources. Planning must also be implemented to enable us to resolve the problems caused by an expanding population, pollution of all kinds, and generally, the depletion of all resources. For mankind to survive as we know it, it is essential for our population to become aware of the steps we must take to assure a good quality of life. In addition, we must learn self-discipline to guarantee that all Maine citizens present and future enjoy a healthful environment. I believe this state plan will form the blueprint to guide our citizens toward this end.

I extend my compliments to those who participated in developing this plan.

Carroll R. McGary, Commissioner
Department of Educational and
Cultural Services

PREFACE

Early in 1971, Dr. Carroll R. McGary, Commissioner of the Maine State Department of Educational and Cultural Services, designated a twelve member writing committee to gather information and draft a comprehensive environmental education plan for Maine. During the ensuing two years, the committee was enlarged and its composition was changed somewhat, but membership included representatives of a broad spectrum of interests including industry, state agencies, higher education, private groups and elementary and secondary education.

For two years the committee worked to identify needs, suggest goals, pinpoint target audiences, and make preliminary recommendations. The draft plan was widely circulated throughout Maine. Individuals were encouraged to offer suggestions for improvement of the plan. This input by individuals was then reviewed by the writing committee and appropriate changes were made in the document. The revised state plan was then submitted to the Commissioner of Educational and Cultural Services for approval. Upon approval the plan was disseminated throughout the state for implementation.

A NASA photo courtesy of the Maine Dept. of Transportation.

WHY AN ENVIRONMENTAL EDUCATION STATE PLAN FOR MAINE

The environmental education State Plan is designed to serve the following vital functions. It will:

- help bring to the attention of the citizens of Maine the need for education about the environment and people's role in it.
- provide for an organized, coordinated effort to meet this need — specifically the plan will identify target audiences as well as give recommendations to those individuals and groups who will actually participate in the creation and maintenance of quality Maine environments.
- identify economic, political, human, and other resources which will assist statewide implementation.

AN EDUCATIONAL NEED IN MAINE

Only recently have people seriously felt that the existing quality of life, previously taken for granted, is being threatened through damage and subsequent deterioration of the environment. A large number of Americans are uneasy about what the future portends for the "good life" of those residing in the western hemisphere — and indeed for all people, unless marked changes occur in the role we play as humans on planet Earth. Concern is justified in knowing that "for better or for worse" people are not only married to their environment but also have no recourse for divorce from that environment. This concern, however, varies greatly in intensity among individuals. For those disadvantaged and struggling for the basic necessities of clothing, shelter, and daily bread and for those socially oppressed, environmental concern understandably gains low priority; while at the opposite end of the spectrum, there are those who completely surrender modern lifestyles, reverting to pastoral living in seeking communion and peace with nature. For many individuals the rather sudden outburst of pronouncements of environmental dangers has been a rude awakening to perplexing problems having many ramifications which reach into the lives of everyone. For example, citizens of Maine must make decisions now on issues and problems related to:

1. air and water pollution
2. coastal development
3. energy
4. forests
5. land use
6. oil
7. tourism
8. waste disposal
9. wilderness

Informed people make better choices

Problem areas, such as these, increasingly require decisions which cannot be postponed. More citizens must experience a sense of urgency as well as a desire and the ability to participate in the decision-making process.

Most individuals feel unprepared to make judgments on environmental questions. How does the person become informed so that irrationality or indifference are replaced with reason and motivation in the making of sound judgments on questions involving the quality of the Maine environment? The poor understanding of how the threads of the environmental fabric are interwoven is due to the social, economic, technological, psychological, medical, and political complexities of environmental problems.

The need clearly exists for a comprehensive, state-wide, educational effort addressed to the wide scope of environmental interests and needs of Maine. Environmental education is such a response.

ENVIRONMENTAL EDUCATION: DEFINITION AND GOALS

Environmental education aims to produce a citizenry that is sensitive to the quality of life, and therefore, to the quality of the environment. Citizens should be able to identify environmental problems, rationally

evaluate alternatives for preventing and solving these problems, and be skilled and motivated to work toward their solution.

Environmental education is a multidisciplinary process. It focuses on total human environment including the interrelationships of population, pollution, resource allocation and depletion, and urban and rural planning. It is based on broad ecological concepts taught through inquiry and issue-oriented methods utilizing local examples.

Environmental education is a life-long process which will, through every aspect of formal and non-formal education, help each citizen develop a philosophy and life-style which is in harmony with the concept of people as a part of nature.

Environmental education possesses the potential for contributing greatly to meeting the needs of Maine's citizens. Perhaps equally important is its potential for educational reform. It emphasizes concepts, values clarification, critical thinking, behavioral skills, and relates students to their "real" and immediate surroundings. It is a way of teaching.

GENERAL RECOMMENDATIONS

Leadership & commitment = results

General recommendations are presented herein for the purpose of achieving the goals of environmental education in Maine:

I. The following levels of environmental education will be made available to Maine citizens:

A. formal pre-school — elementary — secondary education

B. formal higher education

C. formal adult education

D. non-formal general public education

II. Certain organized segments of Maine society should become involved with the four target levels named above in environmental education:

Many groups will need to work together...

A. public and private education institutions

B. private groups (associations, leagues, lodges, clubs, churches, etc.)

C. State Department of Educational and Cultural Services

D. Government agencies at all levels

E. private individuals and foundations

F. industry and business

G. communication media

III. Employ one full-time environmental education director within the State Department of Educational and Cultural Services.

IV. A director of environmental education for the entire University system should be established. This position combined with the specialist named in Item No. III above, will coordinate efforts in attacking the entire target audience in terms of environmental education on a statewide basis.

V. The recommendation will be made to the Commissioner of Educational and Cultural Services for implementation of the state plan through legislative mandate where necessary or through the Commissioner's office when possible.

A walk through a neighborhood can be a total environment learning experience

PRE-SCHOOL — ELEMENTARY AND SECONDARY EDUCATION

STATEMENT OF NEED

Education is a lifelong process. However, the most accessible, impressionable age groups are pre-school, elementary and secondary.

Environmental education must reach pupils at an early age and continue as the pupils progress through school. If society seeks behavioral change in its constituency, then let it begin here where the mechanisms for bringing about behavioral change already exist.

Leadership and support for environmental education are needed at the state level to assist the development and implementation of programs by people at the local level.

"As the twig is bent"...

RECOMMENDATIONS

I. At the state level, the state director of environmental education will:

A. Be provided with professional and clerical assistance and sufficient funds to carry out the responsibilities of the office.

B. Assume responsibility for the following:

1. Development of teacher in-service and pre-service education programs related to local communities in cooperation with higher education institutions.

2. Development of curriculum guidelines.

3. Coordination and dissemination of information and resource materials.

4. Coordination of educational and informational programs and services of state and federal agencies, and public and private organizations.

5. Organization of community groups and schools to establish local programs.

6. Implementation of state plan recommendations.

7. Seek supplemental outside funding.

Not one course but all.

II. At the local level, to assist the state director of environmental education in the implementation of this portion of the state plan, schools and communities shall employ the following avenues:

A. **Environmental Education Coordinator** — the local environmental education coordinator, working part-time or full-time in a school system or for several school systems, is a key to implementing an environmental education curriculum.

The Coordinator will:

1. Provide continuity and coordination for an interdisciplinary K-12 program.

2. Explore community environmental conditions and developments and utilize them for learning experiences.

3. Provide a direct link between the school and community for mutual cooperation and participation in environmental education learning experiences and projects.

4. Provide on-going in-service teacher training.

Local leadership and emphasis is the key.

5. Contribute to meeting adult•education needs related to community environmental education.

6. Become a resource for independent and group environmental studies and activities.

B. **Environmental Education Committee** — A local environmental education committee provides a resource for the coordinator or, where no coordinator exists, provides for the direction and implementation of a program. The committee should consist of local citizens, community officials, school administrators, teachers, and students.

The Committee will:

1. Seek community support and participation.

2. Assist the school in preparing the basic philosophy, goals, program structure, and plan of implementation.

3. Participate in comprehensive community environmental inventories upon which to base an environmental education curriculum emphasis.

4. Assist in the acquisition and development of sites for environmental studies.

5. Assist in the organization and operation of an environmental education resource center for the school and community.

6. Assist in planning, organizing, and implementing a teacher in-service program.

7. Assist in providing for program evaluation.

For the past few years, Sagadahoc Bay (near the mouth of the Kennebec River) has been the site of studies in marine ecology by students from Colby College during the academic year and by students enrolled in a summer course sponsored by TRIGOM (The Research Institute of the Gulf of Maine).

HIGHER EDUCATION

STATEMENT OF NEED

Higher education institutions of Maine are charged with the duties of carrying out research, service, and education for the citizens of the state in all areas of public concern. In today's world, the environment should become a major focus of this charge. While several campuses are doing some work in this important area, the efforts are often uncoordinated and needlessly duplicated. In parts of the university system environmental work is being developed but without appropriate funding and priority. The general needs for support, system-wide coordination, campus level coordination, and program development require immediate attention.

Research...
Scholarship...
Training...
Public Service...

RECOMMENDATIONS

I. A director of environmental education and research services should be named for the university system. This specialist will perform the following duties and be directly responsible to the Chancellor.

The Director will:

A. Coordinate educational, research, and service activities of the system, as they relate to the environment. This work will include the undergraduate and graduate level operations of the university in addition to the continuing education divisions and community service components. The director will serve as a liaison person between the state university and other state supported institutions of higher education, such as the vocational technical institutes and the Maritime Academy. The director is further expected to assist the state university in work with private colleges and institutes in the environmental area.

B. Provide direction and funding for the continued development of environmental programs including the graduate program in environmental education.

C. Coordinate an informational system providing valid, up-dated environmental information which meets the needs of the citizens of the state. These efforts are to be directed towards the university's radio and television network, its libraries, and its printed publications.

D. Co-ordinate the activities of field campuses for university level students and faculty, so that direct studies of the state's conditions of environmental quality and variety can be carried out.

E. Maintain communication with the state environmental education specialist in the Maine State Department of Educational and Cultural Services.

alternative administration structure and cooperation are most important

II. A specialist for environmental education and research service will be named for each campus and other instructional units. The specialist for each campus will:

A. Coordinate and establish programs of environmental study and research compatible with the direction given by the university director. The specialist shall have authority to work across the departments, schools, and colleges of each campus.

B. Seek and manage funds in support of environmentally related teaching and research.

C. Establish special programs for teacher education, environmental specialist education and environmental course work, including field experiences for the general student.

D. Provide guidance for students in the pursuit of environmentally related courses and field work.

E. Encourage the use of campus faculty and field campus facilities to develop family centered environmental programs.

III. Specific programs of environmental education should be established in the campuses of post secondary systems. These include:

Add, delete, strengthen and interrelate

A. Undergraduate programs in teacher education designed to assure that every classroom teacher is provided with the following:

1. Interdisciplinary courses including experience in the use of environmental information.

2. Techniques and methods of teaching.

3. An optional concentration in environmental studies as an elective for any undergraduate major. Field experiences would be included.

B. Broad graduate level environmental courses and programs must be available for persons with technical backgrounds regardless of major or concentration. Field campuses representing a cross-section of communities, both rural and urban, coastal and inland, should supply the essential field laboratory experiences.

C. The graduate degree program in environmental education should be strengthened through additional personnel, funding, and curriculum flexibility.

D. The education of specialists who are qualified for:

1. Leadership roles in community planning and consulting services.

2. Field monitoring, measurement, and management operations.

Field experiences for teachers in environmental education are part of the action program at Maine's Conservation School.

3. Assisting in curriculum development and implementation for all levels of education.

I. Non-credit, informal environmental education. The university and all post-secondary institutions must share their environmental knowledge in less formal and rigid packages than three-credit, six-week summer or 16-week winter varieties of courses. Personnel of a well coordinated system will be made available to persons who need their guidance and knowledge but cannot participate in sophisticated programs. Workshops, training sessions, minicourses and whatever is needed by specific groups are the responsibility of post-secondary institutions. Rather than trying to fit people to courses higher education must build its courses around needs.

... Sharing environmental information with the public.

J. Accepting the challenge of television and other information dispensing media to more effectively serve that segment of the public not otherwise reached through formal courses and established facilities.

G. Taking the initiative for expanding the campus libraries with environmental resource materials designed for Maine people. Special attention should be given to the preparation of printed and multimedia materials in a non-technical language.

H. A university based resource center. Personnel of the university's administration should compile special reports on the environmental quality and variety for the State of Maine. Directed to public school and community use, these materials would consist of:

1. An inventory of field trip sites, identifying interest topics, limitations, accessibility, and other appropriate information.

2. Maps of cities and towns indicating their respective geological, biological and social conditions.

3. Bibliographies of literature, files of available speakers and research pertinent to the needs of teachers and students.

FORMAL ADULT EDUCATION

Accurate information must reach all citizens

STATEMENT OF NEED

The increasing demands upon adults to make decisions affecting the environment call for better understanding of their responsibility for the quality of the environment. Decisions made today will determine how our children fare tomorrow.

Accurate information must reach the adult citizen who is the real action center in society's treatment of its only home.

Choices we make in voting, in consumer habits, and in business practices must be improved through continuing education.

RECOMMENDATIONS

I. Environmental education for adults requires coordination among the State Department of Educational and Cultural Services, the State University System and other groups involved in adult education.

The state director of environmental education will be responsible for establishing a committee of individuals from various facets of adult training. This committee will assist the director in the coordination and development of adult courses and programs.

Education is a life long experience.

II. Environmental experiences should be developed for all phases of adult education with direct involvement in problem-oriented activities designed to help one study issues and solve problems.

A. Workshops and in-service training programs should be developed to re-orient the teachers of adult programs.

B. Courses being offered to adults through vocational, continuing education, seminars and industrial training should be restructured to promote environmental awareness.

C. Career programs based upon changing environmental needs require greater use of vocational technical institutes.

D. Opportunities should be provided for adults in established positions so that they may better understand the impact of their occupational role on the environment.

E. Special programs should be developed which emphasize recreation, productive use of leisure time and community activities leading to a satisfactory life for the retired individual.

III. Resources should be marshalled to provide adults with an opportunity to increase their awareness of the environment and to develop activities which they can undertake to improve environmental conditions.

A. Regional resource centers throughout the state shall provide information for school systems, environmental organizations, media organizations, planning agencies, and interested individuals. Existing resource centers and field campuses should be more fully utilized and new centers encouraged for regions not yet served.

B. The mass media should be encouraged to present factual materials and programs with high environmental impact and high audience appeal.

C. Local resource people including the retired should be utilized in the planning and execution of programs.

The television medium has been used extensively to involve statewide audiences in the decision-making process through "viewer-active" television

NON-FORMAL GENERAL PUBLIC EDUCATION

STATEMENT OF NEED

We cannot merely wait for a generation of Maine children to be educated. Formal education reaches only a limited segment of our population. Everyone who makes decisions, from the average person buying a car to the Governor setting long range policy, needs environmental awareness now.

Not by books alone...

RECOMMENDATIONS

I. The most powerful tools for reaching the general public are the media. Many people's attitudes and actions are substantially shaped by advertising, television and radio programming, and newspaper articles and editorials. Those involved in environmental education should regularly provide information to the media so that they can make it available to all segments of the public and serve as a forum for presenting all sides of environmental issues.

   A. Those involved in environmental education should make contact with media representatives at all levels and convince them of the potential and responsibility of the media in carrying out environmental education.

   B. The media should be convinced of their responsibility to the public to carry only balanced and factual advertising.

   C. The media should be encouraged to inform citizens on ways to become involved in the environmental decision making process.

Agencies are ready to serve us — and will.

II. Many government agencies at the local, regional, state and federal levels have had long experience in environmental areas and are sources of valuable information. These agencies should make more of an effort to share their knowledge and plans with each other and with the public, thus eliminating unnecessary duplication of effort.

Private groups can be powerful forces

A. All agencies involved in environmental areas should through their budgets provide for public information and education activities. All forms of media should be used. Special consideration should be given to radio and T.V. because they reach the largest segment of the public.

B. The activities of field personnel who represent environmentally related agencies should be actively publicized in the communities where they work.

C. The times and ourposes of public hearings held by many agencies should be more widely publicized so that individuals and groups can participate more effectively.

III. The greatest value of Maine's private environmental groups is their ability to speak out about subjects when others are constrained for political or financial reasons. Mechanisms should be designed to encourage and assist these groups to assume a role in promoting and carrying out environmental education activities.

A. An up-dated poll of environmental groups' interests, areas of activity and resources in the field of environmental education should be taken by the state environmental education director and the results should be distributed to government, industry, and the media.

B. Environmental groups should be encouraged to include a broader section of the public in their membership and to have more dialogue with those conflicting views.

C. Environmental groups should provide factual information to balance emotional appeals. They should also be strongly encouraged to have more dialogue with those of conflicting views.

IV. Many influential groups must be convinced of the need for environmental education in order to gain their support and involvement. Such groups include Maine's major industries, labor unions, banks, political leaders, and professional organizations.

A. These groups and their constituencies must be shown how they will be benefited by environmental education.

B. These groups must be shown specific ways they may help environmental education efforts. For example, industry should conduct tours of their plants and participate in forums with environmentalists and environmental education personnel. Professional groups should make more effort to see that environmental education materials produced by their national parent organizations are widely distributed in Maine.

We are really all involved...

C. These groups should provide factual information to balance emotional appeals. They should also be strongly encouraged to have more dialogue with those of conflicting views.

V. A catalogue of environmental education resources from government agencies, private groups, and industry within the state should be available to the public. This catalogue should include films, slides, publications, and other materials, as well as services such as speakers and tours.

A. The state director of environmental education should immediately compile as complete a list as time allows and distribute it widely to libraries, private groups, the media and the public.

B. The state director of environmental education should enlist the aid of colleges within Maine which could involve their students in producing a complete and up-dated environmental education resource catalogue yearly.